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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,665	04/07/2004	Zheng Min Pan	998045 PA3	8016

30781 7590 12/27/2005

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EXAMINER	
ENSEY, BRIAN	

ART UNIT	PAPER NUMBER
2646	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/820,665	PAN ET AL.	
	Examiner	Art Unit	
	Brian Ensey	2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *1-8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-15 and 17* is/are rejected.

7)☒ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This application contains claim 1-8 which have been rewritten as new claims 9-17 to be more consistent with U.S. patent practice in Preliminary amendment dated 04/07/04. Therefore claims 1-8 have been withdrawn for consideration by the examiner and the applicant is reminded that previous claims must be canceled prior to allowance of the application

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Yang U.S. Patent Application No. 2002/0164040 A1.

Regarding claim 9, Yang discloses a twin magnetic loop ("TML") vibrator-speaker multifunctional transducer, comprising: a bowl-shaped magnetic transfer having a flange (330), having a first top side and a bottom side; a cylindrical magnet (320); a disc-shaped pole core (310), said pole core being placed on the cylindrical magnet and centered in the bowl-shaped magnetic transfer on the top side, forming an inner magnetic loop; an annular pole piece (340); an annular magnet (350), having an inward surface and an outward surface, said annular magnet overlaying the annular pole piece and being placed on the bottom side of the flange of the bowl-

shaped magnetic transfer, forming an outer magnetic loop, wherein said inner magnetic loop and outer magnetic loop are integrated (See Fig 3A, abstract and paragraph 0032).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Chung U.S. Patent Application Publication 2002/0076068 A1.

Regarding claim 10, Yang discloses a transducer as claimed. Yang further discloses a housing supporting base (218) (See Fig. 2). Yang does not expressly disclose an annular resilient plate connecting to the flange at the top side of the bowl-shaped magnetic transfer, wherein said the disc-shaped pole core, the bowl-shaped magnetic transfer, the annular pole piece, the cylindrical magnet and the annular magnet are coupled to the housing supporting base via the

annular resilient plate. However, it is well known in the art to use resilient annular plate form support of the magnetic circuit in multimode actuators and Chung teaches an annular resilient plate (37) connecting to the flange at the top side of the bowl-shaped magnetic transfer (35), wherein said the disc-shaped pole core (33), the bowl-shaped magnetic transfer, the annular pole piece (36) and the cylindrical magnet (34) are coupled to the housing supporting base via the annular resilient plate (See Fig. 7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide an annular resilient plate for support in the housing of Yang.

Regarding claim 12, the combination of Yang in view of Chung further discloses a voice coil (226); a vibrating diaphragm (228), said voice coil joining said vibrating diaphragm at the center of the vibrating diaphragm, for placing said voice coil into a spacing of the inner magnetic loop so as to produce sound (See Yang Fig. 2 and paragraph 0030).

Regarding claim 13, the combination of Yang in view of Chung further discloses wherein the vibrating diaphragm (228)used to emit sound is made of one of a polyester film, a perm alloy plate and other voice diaphragm materials (rubber) (See Yang paragraph 0030).

3. Claim 11 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Chung as applied to claim 10 above, and further in view of Chang U.S. Patent No. 6,754,363.

Regarding claim 11, the combination of Yang in view of Chung discloses a transducer as claimed. The combination of Yang in view of Chung further teaches a vibrating coil (222), said vibrating coil being placed between the bottom side of the bowl-shaped magnetic transfer and the inward surface of the annular magnet, said vibrating coil being connected to a diaphragm (224)

for generating sound (See Yang Fig. 2). The combination of Yang in view of Chung fails to disclose a rigid sheet, said rigid sheet being connected to the vibrating coil at the center of the rigid sheet, said rigid sheet joining the supporting support base at the perimeter of the rigid sheet. However, the use of rigid sheets as diaphragms is well known in the art and Chang teaches disclose a rigid sheet, said rigid sheet (16) being connected to the vibrating coil (15) at the center of the rigid sheet, said rigid sheet joining the supporting support base (10) at the perimeter of the rigid sheet (See Fig. 3 and col. 3, lines 24-53). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the diaphragm of Yang with the rigid sheet of Chang for low frequency vibrational output signals.

Regarding claim 15, the combination of Yang in view of Chung further discloses the inherent resonant frequency of the vibrating coil, the resilient plate and the 'IML for performing vibrating function, is between 100-200HZ (See Yang paragraph 0028).

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Chung and further in view of Shiraki et al. U.S. Patent No. 6,608,541.

Regarding claim 14, the combination of Yang in view of Chung teaches a transducer as claimed. The combination of Yang in view of Chung fails to teach the inherent resonant frequency of the magnetic loop, the voice coil and the vibrating diaphragm for sound function, is a preset value above 400 Hz. However, it is well known in the art to provide audio sound in a wide range for human hearing and Shiraki teaches an actuator for producing both vibration and voice outputs with a broadband frequency of 900 to 8000 Hz for the voice coil and diaphragm (See col. 5, lines 15-24). Therefore, it would have been obvious to one of ordinary skill in the art

at the time of the invention to provide a sound output of the combination of Yang in view of Chung in a broadband of the audible hearing range.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Chung and further in view of Chang.

Regarding claim 17, Yang discloses a twin magnetic loop ("TML") vibrator-speaker multifunctional transducer, comprising: a bowl-shaped magnetic transfer having a flange (330), having a first top side and a bottom side; a cylindrical magnet (320); a disc-shaped pole core (310), said pole core being placed on the cylindrical magnet and centered in the bowl-shaped magnetic transfer on the top side, forming an inner magnetic loop; an annular pole piece (340); an annular magnet (350), having an inward surface and an outward surface, said annular magnet overlaying the annular pole piece and being placed on the bottom side of the flange of the bowl-shaped magnetic transfer, forming an outer magnetic loop, wherein said inner magnetic loop and outer magnetic loop are integrated; a voice coil (226); a vibrating diaphragm (228), said voice coil joining said vibrating diaphragm at the center of the vibrating diaphragm, for placing said voice coil into a spacing of the inner magnetic loop so as to produce sound; and a housing support base(220) (See Yang Fig. 2 and 3A and paragraphs 0030-0032). Yang does not expressly disclose an annular resilient plate connecting to the flange at the top side of the bowl-shaped magnetic transfer, wherein said the disc-shaped pole core, the bowl-shaped magnetic transfer, the annular pole piece, the cylindrical magnet and the annular magnet are coupled to the housing supporting base via the annular resilient plate. However, it is well known in the art to use resilient annular plate form support of the magnetic circuit in multimode actuators and Chung teaches an annular resilient plate (37) connecting to the flange at the top side of the bowl-

shaped magnetic transfer (35), wherein said the disc-shaped pole core (33), the bowl-shaped magnetic transfer, the annular pole piece (36) and the cylindrical magnet (34) are coupled to the housing supporting base via the annular resilient plate (See Fig. 7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide an annular resilient plate for support in the housing of Yang. Yang fails to disclose a rigid sheet, said rigid sheet being connected to the vibrating coil at the center of the rigid sheet, said rigid sheet joining the supporting support base at the perimeter of the rigid sheet. However, the use of rigid sheets as diaphragms is well known in the art and Chang teaches disclose a rigid sheet, said rigid sheet (16) being connected to the vibrating coil (15) at the center of the rigid sheet, said rigid sheet joining the supporting support base (10) at the perimeter of the rigid sheet (See Fig. 3 and col. 3, lines 24-53). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the diaphragm of Yang with the rigid sheet of Chang for low frequency vibrational output signals.

Allowable Subject Matter

6. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Va. 22313-1450

Or faxed to:

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".

Hand-delivered responses should be brought to:

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BKE
December 12, 2005

SINH TRAN
SUPERVISORY PATENT EXAMINER